Focus Report

New Chemicals Program

PMN Number: **L-12-0012**

Focus Date:	10/23/2011 11:00:00 PM	Report Status:	In Progress
Consolidated Set:			
Focus Chair:	Rose Allison	Contractor:	Stephen Wieroniey

I. Notice Information

Submitter:	Tracerco	CAS Number:	31599-61-8
Chemical Name:	Benzene, 4-iodo-1,2-dimethyl-		
Use:	Tracer chemical used to monitor and measure the movement of oil in deep oil/gas bearing geological strata. [redacted]. P2 Claim: The LVE substance is a substitute for radionuclide tracers to measure the flow rate in oil-bearing strata.		
Other Uses:	[redacted]		
PV-Max:	1,000 Kg/yr	Binding Option:	Yes
Manufacture:		Import:	X

II. SAT Results

(1) **Health Rating:** 1-2 **Eco Rating:** 2 **Comments:** ;

Occupational: 1-2A **Non-Occupational:** **Environmental:** 2

(1) **PBT:** 1	1	1	**Comments:**
		Awaiting Human Health Entry	
		Awaiting Human Health Entry	
		Awaiting Human Health Entry	

III. OTHER FACTORS

Categories:

Health Chemical Category:		Ecotox SAR and TSCA New Chemical Category:	neutral organic chemicals;

Related Cases/Regulatory History:

Health related Cases:

Ecotox Related Cases: Analogs: [redacted]

Regulatory History: [redacted]-GRANTED
[redacted]-PENDING A NON-5(e) SNUR/LTTR SENT
[redacted]-FOCUS DROP

MSDS/Label Information:

MSDS:	Yes	Label:	No
General Equipment:	safety glasses / impervious gloves / protective work clothing / properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.		
Respirator:	suitable respirator when high concentrations are present		
Health Effects:	irritating to eyes, respiratory system, and skin		
TLV/PEL (PMN or raw material):	- None Established		
LVEPPE:	impervious gloves / goggles / Tyvek suit		

Exposure Based Information:

Exposure Based Review:	N	Exposure Based Review (Health):	N
Exposure Based Review (Eco):	N	Exposure Based (Occupational):	No
Exposure Based Review		Exposure Based (Environmental):	

(Non Occupatuional):

IV. Summary of SAT Assessment

Fate:

Fate Summary:

L-12-0012-13
FATE:
Liquid with MP < 25 C (E)
log Kow = 4.25 (E)
S = 17.6 mg/L at 25 C (E)
VP = 9.2E-2 torr at 25 C (NOMO5)
BP = 225-234 C (M)
H = 1.94E-3 (E)
log Koc = 2.79 (E)
log Fish BCF = 2.47 (E)
log Fish BAF = 2.49 (E)
POTW removal (%) = 63 via sorption and stripping
Time for complete ultimate aerobic biodeg = wk
Sorption to soils/sediments = strong
Volatilization half-life from a standard river = 2 hrs
Volatilization half-life from a standard lake = 6 da
Atmospheric Oxidation Half-life = 29 hr via OH radical
PBT Potential: P1B1
*CEB FATE: Migration to ground water = slow

Health:

Health Summary:

Absorption is moderate all routes based on physical/chemical properties. There is concern for mutagenicity by analogy to 3-iodotoluene which is positive in a micronucleus assay. There is uncertain concern for oncogenicity because the benzene ring can be epoxidized. There is also uncertain concern for solvent-type neurotoxicity and concern for developmental toxicity by analogy to small benzenes. Low moderate concern.

Ecotox:

Ecotox Values:

Fish 96-h LC50:	1.9(P)
Daphnid 48-h LC50:	1.5(P)
Green algal 96-h EC50:	1.8(P)
Fish Chronic Value:	0.22(P)
Daphnid ChV:	0.24(P)
Algal ChV:	1.0(P)

Ecotox values comments:

Predictions are based on SARs for neutral organic chemicals; SAR chemical class = iodinated hydrocarbon; MW 232; log Kow = 4.25 (EPI); solid with mp = 41 C (M); pH7; effective concentrations based on 100% active ingredients and mean measured concentrations; hardness <150.0 mg/L as CaCO3; and TOC <2.0 mg/L;

Ecotox Factors:

Assessment Factor:	10
Concern Concentration: - Acute Value	
Concern Concentration: - Chronic Value	22

V. Summary of Exposures/Releases

Engineering Summary: L-12-0012

Exposures/Releases	Release	Release	Release
Scenario	**Processing: Tracer Chemical Formulation**	**Processing: Tracer Chemical Formulation**	**Processing: Tracer Chemical Formulation**
Sites	**1**	**1**	**1**
Media	**Water or Incineration or Landfill**	**Air**	**Air**
Descriptor A	Conservative	Output 2	Typical
Quantity A (kg/site/day)	6.2E-1	7.6E-3	1.9E-4
Frequency A (day/year)	16	16	16
Descriptor B			Worst Case
Quantity B (kg/site/day)			1.9E-4
Frequency B (day/year)			16
From	Equipment Cleaning Losses of Liquids from a Single, Small Vessel	Equipment Cleaning Losses of Liquids from a Single, Small Vessel	Loading Liquid Product into Containers
Workers			
Exposure Type			

Engineering Summary: Exposures/Releases	Release	Release	Release
Scenario	**Processing: Tracer Chemical Formulation**	**Processing: Tracer Chemical Formulation**	**Use: Injection of Tracer Chemical into Oil-Bearing Strata**
Sites	**1**	**1**	**1**
Media	**Air**	**Water or Incineration or Landfill**	**Air**
Descriptor A	Typical	High End	Typical
Quantity A (kg/site/day)	1.8E-4	3.8E-1	6.2E-5
Frequency A (day/year)	16	16	50
Descriptor B	Worst Case		Worst Case
Quantity B (kg/site/day)	1.8E-4		6.2E-5
Frequency B (day/year)	16		50
From	Unloading Liquid Raw Material from Containers	Cleaning Liquid Residuals from Containers Used to Transport the Raw Material	Unloading Liquid Product from Containers
Workers			
Exposure Type			

V. Summary of Exposures/Releases

Engineering Summary: L-12-0012

Exposures/Releases	Release	Release	Exposure
Scenario	**Use: Injection of Tracer Chemical into Oil-Bearing Strata**	**Use: Injection of Tracer Chemical into Oil-Bearing Strata**	**Processing: Tracer Chemical Formulation**
Sites	**1**	**1**	**1**
Media	**Water or Incineration or Landfill**	**Incineration**	**Dermal**
Descriptor A	High End	Output 2	High End
Quantity A (kg/site/day)	1.2E-1	2.0E+1	7.1E+2
Frequency A (day/year)	50	50	16
Descriptor B			
Quantity B (kg/site/day)			
Frequency B (day/year)			
From	Cleaning Liquid Residuals from Containers Used to Transport the Product	Oil Production	Loading Liquid Product into Containers
Workers			3
Exposure Type			Liquid

Engineering Summary: Exposures/Releases	Exposure	Exposure	Exposure
Scenario	**Processing: Tracer Chemical Formulation**	**Processing: Tracer Chemical Formulation**	**Processing: Tracer Chemical Formulation**
Sites	**1**	**1**	**1**
Media	**Inhalation**	**Dermal**	**Inhalation**
Descriptor A	Worst Case	High End	Worst Case
Quantity A (kg/site/day)	9.3E-1	1.7E+3	8.5E-1
Frequency A (day/year)	16	16	16
Descriptor B	Typical		Typical
Quantity B (kg/site/day)	3.1E-2		2.8E-2
Frequency B (day/year)	16		16
From	Loading Liquid Product into Containers	Unloading Liquid Raw Material from Containers	Unloading Liquid Raw Material from Containers
Workers	3	3	3
Exposure Type	Vapor	Liquid	Vapor

V. Summary of Exposures/Releases

Engineering Summary: L-12-0012

Exposures/Releases	Exposure	Exposure	
Scenario	**Use: Injection of Tracer Chemical into Oil-Bearing Strata**	**Use: Injection of Tracer Chemical into Oil-Bearing Strata**	
Sites	**1**	**1**	
Media	**Dermal**	**Inhalation**	
Descriptor A	High End	Worst Case	
Quantity A (kg/site/day)	7.1E+2	8.9E-1	
Frequency A (day/year)	50	50	
Descriptor B		Typical	
Quantity B (kg/site/day)		3.0E-2	
Frequency B (day/year)		50	
From	Unloading Liquid Product from Containers	Unloading Liquid Product from Containers	
Workers			
Exposure Type	Liquid	Vapor	

VI. Focus Decision and Rationale

Regulatory Actions

Regulatory Decision: LVE Conditional Grant Decision Date: 10/23/2011
Type of Decision:

Rationale: L-12-0012 was given a conditional grant. Human health concerns were low-moderate for dermal, drinking water and inhalation exposure. Potential risks to workers were addressed by adequate dermal PPE. However, the submitter must amend the notice and MSDS to include a NIOSH-certified organic vapor cartridge respirator. Ecotoxicity concerns were high. Potential risks to the environment were low due to less than 20 days of exceedance of the COC. This LVE was bound at 1,000 kg/year.

COC: Chronic – 3 ppb, Acute – 40 ppb.

Summary of Exposures and Releases:

Processing:
1 site, 16 days/year, 3 workers
Inhalation 1: Vapor: Typical: 3.1E-2 mg/day over; Worst Case: 9.3E-1 mg/day
Inhalation 2: Vapor: Typical: 2.8E-2 mg/day; Worst Case: 8.5E-1 mg/day over
Dermal 1: 7.1E+2 mg/day (Liquid 40%)
Dermal 2: 1.7E+3 mg/day (Liquid 98%)

Releases to Water 1: 6.2E-1 kg/site-day over 16 days/yr
Or Incineration or Landfill
Releases to Water 2: 3.8E-1 kg/site-day over 16 days/yr
Or Incineration or Landfill
Releases to Air 1: 7.6E-3 kg/site-day over 16 days/yr
Releases to Air 2: Typical: 1.9E-4 kg/site-day over 16 days/yr; Worst Case: 1.9E-4 kg/site-day over 16 days/yr
Releases to Air 3: Typical: 1.8E-4 kg/site-day over 16 days/yr; Worst Case: 1.8E-4 kg/site-day over 16 days/yr

Fate Releases to Water (63% Removal):
SWC: 6.84E+01 ppb
DW: LADD: 2.50E-06 mg/kg/day; ADR: 3.30E-03 mg/kg/day

Use:
1 site, 50 days/year, 3 workers
Inhalation: Vapor: Typical: 3.0E-2 mg/day over 50 days/yr; Worst Case: 8.9E-1 mg/day
Dermal: 7.1E+2 mg/day (Liquid 40%)

Releases to Water: 1.2E-1 kg/site-day over 50 days/yr
Or Incineration or Landfill
Releases to Air: Typical: 6.2E-5 kg/site-day over 50 days/yr; Worst Case: 6.2E-5 kg/site-day over 50 days/yr

Fate Releases to Water (63% Removal):
SWC: 4.19E+01 ppb
DW: LADD: 4.27E-06 mg/kg/day; ADR: 1.91E-03 mg/kg/day
>COC (22 ppb): 8/50 release days

P2 Rec Comments:

Testing:

Final Recommended:

Health:

Eco:

Fate:

Other:

SAT Report

PMN Number: **L-12-0012**
SAT Date: **10/18/2011**
Print Date: **6/2/2015**

Related cases: [redacted]

Health related cases:

Ecotox related cases: Analogs: [redacted]

Concern levels:

Type of Concern:	**Health**	**Eco**	**Comments**
Level of Concern:	1-2	2	

Persistence	**Bioaccum**	**Toxicity**	**Comments**
1	1	1	
		Awaiting Human Health Entry	
		Awaiting Human Health Entry	
		Awaiting Human Health Entry	

Exposure Based Review:

Health: No
Ecotox: No

Routes of exposure:

Health: Dermal Drinking Water Inhalation
Ecotox: All releases to water
Fate: ;

Keywords:

Keywords:

Summary of Assessment:

Fate:

Fate Summary: L-12-0012-13

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Ecotox:

Test Organism	Test Type	Test End Point	Predicted	Measured	Comments
fish	**96-h**	**LC50**	1.9		
daphnid	**48-h**	**LC50**	1.5		
green algal	**96-h**	**EC50**	1.8		
fish	**_**	**chronic value**	0.22		
daphnid	**_**	**chronic value**	0.24		
algal	**_**	**chronic value**	1.0		
Sewage Sludge	**3-h**	**EC50**	**_**		
Sewage Sludge	**_**	**Chronic Value**	**_**		

Ecotox Values Comments: Predictions are based on SARs for neutral organic chemicals; SAR chemical class = iodinated hydrocarbon; MW 232; log Kow = 4.25 (EPI); solid with mp = 41 C (M); pH7; effective concentrations based on 100% active ingredients and mean measured concentrations; hardness <150.0 mg/L as CaCO3; and TOC <2.0 mg/L;

Factors	Values	Comments
Assessment Factor	10	
Concentration of Concern (ppb) Acute		
Concentration of Concern (ppb) Chronic	22	
SARs	neutral organic chemicals	
SAR Class	iodinated hydrocarbon	new chemicals category: neutral organics
TSCA New Chemcial Category		

Ecotox Factors Comments:

SAT Chair: Becky Jones
Fate assessor: **Ecotox assessor:** **Health assessor:**